KITTY HAWK PLANNING BOARD
MINUTES
Regular Meeting, September 11, 2008 - 6:00 p.m.
Kitty Hawk Municipal Building

AGENDA

1. Call to Order / Attendance
2. Approval of Agenda
3. Wind Energy Forum
   a. Introduction of Speakers
      - Bob Leker, State Energy Office, NC Department of Administration
      - Paul Quinlan, NC Sustainable Energy Association
      - Steve Kalland, NC Solar Center
      - Glenn Mauney, Wind Energy Consulting & Contracting
   b. Presentation
   c. Question and Answer Session
4. Approval of Minutes
   a. August 7, 2008 Meeting
   b. August 21, 2008 Meeting
5. Text Amendment:
   a. Sections 20-66 & 20-67 – Nonconforming Lots of Record: Establish Standards for Nonconforming Multi-Family Residences
6. Comments:
   a. Chairman Northen
   b. Planning Board Members
   c. Town Attorney
   d. Planning Director
7. Public Comment
8. Adjourn

1. CALL TO ORDER / ATTENDANCE

Chairman Northen called the meeting to order at approximately 6:09 p.m., followed by roll call.

PLANNING BOARD MEMBERS PRESENT: Oscar Northen, Chairman / Tina Tice, Vice Chair / Richard Fagan / Merritt Hooper / Don Stallman / Jeff Pruitt, Alternate

STAFF PRESENT: Maureen O'Shea, Planner II, Sitting for Joe Heard, Director of Planning & Inspections / Steve Michael, Town Attorney

2. APPROVAL OF AGENDA

Hearing no changes, **Chairman Northen declared the agenda approved as submitted.**

3. WIND ENERGY FORUM

Upon Chairman Northen welcoming the speakers for this public wind energy information and forum, the floor was turned over to Bob Leker, with the State Energy Office, NC Department of Administration. [Recording Secretary Note: there was superb attendance; standing room only.]

a. <u>Introduction of Speakers, and b. Presentation</u>.

As Renewable Energy Program Manager with the State Energy Office, Leker indicated he deals with wind, solar, biomass, hydro, lightning, ocean thermal, ocean tidal, and etc., kinds of alternative, renewable visionary energy sources.

This presentation of approximately 30 minutes followed with a time for questions and answers. Other participants of the wind energy panel were: Paul Quinlan, NC Sustainable Energy Association; Steve Kalland, NC Solar Center; and, Glenn Mauney, Wind Energy Consulting & Contracting.

Leker stated much of the information in this presentation is cooperative in nature, formed under the NC Wind Working Group composed of several State energy and regulatory agencies, Appalachian State University, wind energy developers, and environmental organizations. The goals for the working group are to identify and address issues related to wind power use in NC, to provide wind energy, and to generate interest leading to responsible wind development.

Leker guided his presentation with a Powerpoint program, "Public Forum on Wind Energy." Noted were purposes for this forum, to: review briefly how NC gets its energy, discuss wind power benefits and issues, learn about some of the basic technology involved in wind energy, outline the wind development process for a wind farm, and describe local wind resources.

<u>NC Energy Quick Facts</u>.

NC has no conventional supplies of fuel: no gas, no coal, no petroleum, and no uranium. All of NC's fuel is imported, which is money that leaves the state to purchase energy for use. Electricity is generated from coal, about 60%, and nuclear about 30%, and the balance is a mix of pumped hydro storage, combustion wood plant and some other very small bits of petroleum or diesel – primarily conventional fuels with a tiny bit of renewable fuels, which is hoped to be increased. Per capita, electricity consumption is rather low, in comparison to the State of California, though more can be done with efficiency. All transportation and energy generation fuels are imported.

NC is blessed with wind energy; however, wind energy alone cannot solve all problems with energy generation. It will need to be a portfolio or a mix of renewable technologies and conservation that provide the stability and reliability and the future capacity for growth in NC. It would need to be a robust, mixed portfolio that would probably include at least some conventional fuels but also involve a bigger role for renewable fuels for the State's energy supplies, especially since there is now a renewable portfolio standard electric utilities are mandated to use.

<u>NC Wind Energy</u>.

The State's wind energy is mostly concentrated on its coast, which slows down when coming into contact with vegetation. As one moves from the sounds toward the ocean, the wind resource gets better and better. Another area of concentrated wind energy is the Appalachian region, particularly on the mountain ridges facing northwest.

There are various estimates for the wind energy potential in NC, but suffice it to say, there are thousands of megawatts of potential. Approximately 1,000 megawatts could be obtained in the mountains from a selected build out of ridges with good wind resource. There is a very small percentage of potential at the coast that does not include any amount of wind power in the ocean. What is addressed is wind from coastal areas on the mainland, the sounds and the

Outer Banks. Along the coast, the amount of 2,400 MWh (which is an estimate) that could be obtained is about twice that of a nuclear reactor at about 1,000 MWh. There is a tremendous harvestable resource in the waters of NC and along the ridges of its mountains, but it will take political will and motivation in order to harvest its wind.

Another reference noted was Lake Mattamuskeet having a wind resource of 10 mph and greater as an average. Once wind of at least 14 mph is reached, such speed can be used as a utility wind.

For a wind farm, data is used to know the relative proportion of where the wind blows, which helps layout wind turbines so they do not shatter each other.

Installed Wind Capacity in the U.S.

There is no significant installed wind capacity in the southeastern area of the U.S. Texas recently overtook California and leads the nation in capacity, the potential to generate wind power. The U.S. is also the second leader in the world in terms of capacity installed, just behind Germany. Work is being done to build wind capacity in the northeastern area.

Encouraging Clean Energy in NC.

There is a renewable energy portfolio standard which requires NC's electric utilities to get a portion of their electricity from renewable energy. In the case of investor-owned utilities, they will need to get 7% of their electricity from renewable sources or renewable technologies by the year 2021. It also includes a 5.5% maximum that the utilities can achieve through energy conservation. There are lower thresholds for electric membership corporations and municipal electric utilities.

Benefits of Wind.

Any renewable technology such as wind offers this country the opportunity to become energy independent and fosters more stability in terms of future pricing. Renewable technologies of wind, solar and hydro power have no cost for the fuel, so there is no risk for inflation with that fuel. As known, oil, coal and uranium are increasing in price exponentially with no end in sight, especially since the U.S. has yet to institute carbon standards, and when such occurs, prices will continue to increase.

Wind energy is cost-competitive as recognized by build out around the country and does provide a boost to the local economy in several ways: land lease payments or royalty payments to land owners; local property taxes on the capital equipment; and, jobs directly related to the construction of turbines and an indirect relationship to that construction with the service industry. A farmer could have a second harvestable crop from his property, whereas an installed wind turbine can have a cornfield right up to the base of the turbine or can have cattle grazing around it. There is also tourism and educational opportunities with wind turbines as wind farms start to be a destination or have developments near them which offer information concerning the wind farm.

With regard to environmental benefits, there are no emissions from a wind farm. They do not require any sewer or water connection because they do not use either infrastructure. There are no habitable buildings, in that the turbines are not designed to be lived in.

The price of wind relative to the conventional power wholesale price index is competitive, even with new incrementally added generation.

Wind Turbine Technology Basics.

Wind turbines have a hub height of anywhere from 50 to 80 meters, or 150' to 260', with the blades extending another 50 to 70 meters beyond that. They are typically three-bladed machines, although there is talk about a future monster off-shore wind machine having only two blades. There are smaller residential / commercial machines, such as the one installed at the Outer Banks Brewing Station. Intermediate sizes have higher towers and longer blades with more capacity to generate power.

Three-bladed small wind turbines have over-speed protection using a mechanical furling and some have braking. There are various designs used with different types of generators and controllers. They can be designed to a specific need or use and tied into the electric grid in order to receive a grid payment. They are designed to be simple and rugged but do require maintenance and inspection of the blades, especially the leading edges, and making sure the generator and housing are secured. A maintenance schedule is usually recommended.

There are different tower designs, where some have a freestanding tower without the guy wires and others have guy wires with the tower. Some towers can be tilted to lower the turbine for either maintenance or if there is a storm.

Large wind turbines are designed for extended use in the 20- to 30-year range; in fact, many turbines in the west are being reused and repowered, with existing towers having larger turbines installed.

With regard to installed cost, at approximately $13,000 per kilowatt, a small 3 kilowatt turbine could cost in the range of $30,000 to $40,000 with controller and tower, also depending upon how much installation is done by the purchaser as well as the height of the tower. Typically, warranties cover a period of time for the materials and workmanship of the machine.

The tower is a critical piece of any wind turbine because one must reach into the wind and out of ground level winds because ground winds are usually turbulent, mixing and swirling around. Wind turbines do not like rapidly changing wind direction, which does not allow for efficient operation, and changing wind directions cause stress on the tower and blades. Wind turbines are usually on towers of at least 90' to 100' and more to get above vegetation and up into the winds that are less affected by contact with the ground and vegetation. The higher a tower, the better the wind speed.

<u>The Coquina Beach Wind Turbine</u>.

The wind turbine installed at the Coquina Beach location is a downwind turbine, which means the blades are downwind from the generator. The 2.5 kilowatt capacity turbine can generate up to 30 kilowatt hours in a day. Summer months are typically not quite as powerful as some winter months which have wind prevailing storms.

<u>Utility Scale Wind Turbines</u>.

Utility scale wind turbines are large machines with a hub height (to where the blade attaches) of anywhere from 200' to 300' or more. The blades go up another 100' to 150', depending on the size of the turbine. The bigger the blades, the more power the machine will make because the larger blades intercept more wind.

The evolution of wind turbine technology has seen growth from the smaller turbines installed on lattice grid towers in the western San Francisco Bay area to becoming quite a bit larger. The smaller turbines started at 50 to 100 kilowatts in size, with newer turbines now at 1.5 to 2.5 megawatts per turbine at a utility scale. Installations of larger turbines on lattice towers are no longer being done which had the attended problem of both noise and being a

bird roosting area.

Land-based turbines are rapidly heading to 2.5 megawatts in size, and ocean-based turbines or water-based turbines range in the 2 to 4 megawatts in size. Water-based turbines tend to be larger because the water-based installations are more costly, and developers are attempting to recoup the economies of scale with those water-based turbines. Another issue with a water-based turbine is, for example, that one can be hit by a barge.

With regard to utility scale wind perspective, sophisticated modeling tools can take a look at the aesthetics of a wind turbine and place them accordingly in various locations at various distances. Such tools can also show how the wind turbine will look from a particular vantage point.

Birds and Wind Turbines.

Certainly, a wind turbine may kill birds, but there are lots of other ways birds are killed, such as buildings, high tension wires, cars, cats, etc. Generally, wind turbines have a relatively low impact on adjacent avian populations. When considering a wind turbine, one needs to take into account the habitat and address any potential impact from location choice.

Noise and Wind Turbines.

In perspective, the noise issue is minimal, even with a large wind turbine, and actually, a larger wind turbine is quieter because the blades do not spin as fast. Any noise coming from a turbine is usually drowned out by the winds at ground level. Even at a wind farm, the noise level is minimal.

Weather Conditions and Wind Turbines.

Wind turbines are meant to survive a number of extreme weather conditions. Most utility scale turbines are meant to work in winds up to 150 mph and can be designed to work in even stronger winds. Small turbines, essentially, are turned off and shut down. The mitigation for utility scale turbines are rated for very high wind speeds, and the locating of such turbines takes into consideration issues such as setbacks. Large turbines are not passive machines and often act as weather stations. In extreme weather conditions, the large turbines anticipate wind load and will shut down in order to protect the machine.

General Considerations for Wind Development.

To consider wind development, there must first be the wind resource itself with an idea of what the wind potential will be. For utility scale wind, a wind monitoring tower is usually installed with data collected typically for a year to verify the wind resource, particularly for developers needing to know such information in calculating upfront and recouping costs.

Other issues relating to using wind as a resource revolve around zoning laws, wind ordinances, regulatory permits, transmission requirements, and access evaluation for installation.

Other Key Issues for Wind Power.

In the U.S., there is a production tax credit that wind developers have relied upon, which has gone up and down and is problematic to anyone financing a project over time and needing predictability regarding investments. Other countries have dealt with the same by developing a set of incentives that go out ten to twenty years.

Site locating and permitting, avian and bat interactions, endangered species, habitat impact, noise and visual issues need to be considered when thinking about wind power as a utility.

In this country, the non-monetary value of wind or other commercial renewable energies has not been accounted for, and the vast value they have with carbon credit and benefits to the environment has not been looked at.

Land Requirements for Large Wind Projects.

For a large wind turbine project, a 40' to 50' diameter concrete pad is dug into the ground which serves as the stability for the tower and turbine above it. A gravel access road is needed.

The construction phase is typically the shortest phase of a large wind development project. The development phase can entail everything from collecting a year or more of wind data to doing environmental assessments, addressing zoning and obtaining permits. Once the land has been obtained and the site has been evaluated, the construction of a wind turbine can go fairly quickly.

Some of the permitting review issues include land use planning, visual impact, noise, aviation pathways, FAA regulations for radar and clear sight of radar with some potential for radio wave interference, cultural evaluations of the site, wildlife evaluation, and mitigating wetland impacts.

Model Wind Ordinance by the NC Working Wind Group.

A Model Wind Ordinance (MWO) has been developed by the NC Working Wind Group, which includes input from the NC Solar Center, environmental representatives, wind developer representatives, and representatives from NC Fish & Wildlife. Existing ordinances from around the country were used as a model, which address three sizes of turbine developments: residential (less than 20 kilowatts in capacity); medium turbines (20 to 100 kilowatts); and the greater than 100 kilowatts in capacity.

The MWO used setbacks to mitigate issues such as noise and nuisance, and the setback is simply a multiplier times the total height of the wind turbine – from the base to the tip of the blade's highest extent. Thus, if the turbine and blade is 400', a 1.0 setback would be 400' from the center of the tower in a horizontal distance (or a 1.5 setback would be 600').

Contact Information:

NC State Energy Office - www.energync.net
NC Solar Center - www.ncsc.ncsu.edu
Appalachian State University - http://wind.appstate.edu

Examples.

At this point in the presentation, pictures of successful wind turbine projects were shown from Hull, MA, a school in Minnesota, general locations in the Midwest, and Cathedral Rocks, Australia.

Further Introduction of Panel.

Steve Kalland, Director of the NC Solar Center at NCSU, which is a part of the engineering college, serves more as a policy analyst than an engineer. On many energy issues, it takes a whole array of talents between policy makers, engineers, and businessmen in order to put all the pieces together. The NC Solar Center has been working for a number of years trying

to put forward information for community use on wind energy technologies. As a State agency, it does not lobby and is more interested in promoting information.

Paul Quinlan, representing the NC Sustainable Energy Association, has worked tirelessly to help Leker with public wind forums.

Glenn Mauney, with Wind Energy Consulting & Contracting, represents the wind developer and contractor's point of view.

c. <u>Question and Answer Session</u>.

At this time, the floor was opened for questions from the public, with Kalland moderating. Time was approximately 6:50 p.m.

A member of the public recalled a wind project proposal presented by T. Boone Pickens.

Quinlan briefly explained that Pickens' vision or idea was to build a lot of wind facilities in the Midwest from the Canadian border down to the Texas panhandle which would power transportation vehicles and reduce dependency on foreign fuels. It was noted that such a development would not work in NC. Though Pickens said a 3 megawatt wind turbine would equate to 12,000 barrels of oil, Kalland added, he is not the first person in the energy industry to make a stretched claim. Pickens is a wealthy salesman, basically, and whether or not you believe in what he is doing, history will bear it out.

A reference was made to an article appearing in the New York Times which profiled a wind farm in upstate NY. Though the wind farm project was given praise, the article also addressed that the power grid, not only there but throughout the county, was so antiquated it cannot adequately handle the amount of energy the turbines are producing. The question was raised how NC's power grid stacks up and if the grid would even be able to handle big turbines located in the sound, more or less small residential turbines.

Leker stated that large wind farms do have significant impact on transmission, particularly long distance transmission of power to the load. For smaller wind farms, it is a lot easier for a transmission to handle such, and in many places where there are moderate sized substations, transmission really is not a problem. A moderate scale wind farm in the 5 to 20 megawatt or even 50 megawatt range may not have that great of an impact. For a very large build out and 100's of megawatts, support and transmission does become an issue.

A question was posed if studies are being done of what is available in NC and where improvements to infrastructure will allow the power grid to handle the load of wind energy users.

Kalland explained that extensive effort was initially undertaken to do wind mapping, a modeling process. New weather data and established models are reviewed together to project what wind would be at various heights. The NC Solar Center has worked with Appalachian State University to get actual site data. Also, the State Observation of Wind Program provides wind equipment to persons desiring to get information on wind resources at specific sites, which should be done at least over a year's timeframe. In that the reservation list for the equipment has a long wait, developers are starting to do private prospecting within the State of NC.

With regard to the power grid's ability to take on wind energy, Kalland pointed out that the location of the wind resources determines the need for any grid improvement. Utility companies are just starting to look at this issue, though grid needs on the coastal area have already been a concern because of population growth. By adding wind energy, due to State requirements to put renewable energy in place, companies are examining their networks and determining what is possible and what works. None of that information, however, is being made public just yet but is ongoing.

Vice Chair Tice asked if it is typical for a municipality when drafting a wind ordinance to require the applicant to have some type of verification of the wind resource prior to filling out an application.

Quinlan replied such a requirement would be up to the municipality, which also depends on the size of the project. Municipalities are more likely to see residential scale facilities, and requiring a year's study would be expensive for an individual household. Even though equipment could be borrowed and the information obtained, the time line is long to wait for the equipment. Residential installers, more than likely, are not doing so for financial reasons in that the investment return would not be seen for almost 20 years, but doing so for environmental concerns. Requiring wind data to prove the economics of a project does not correlate, especially when a wind turbine is installed primarily for environmental reasons.

Leker indicated he is not familiar with any ordinances that require data.

Vice Chair Tice explained the reason for asking said question is because the Outer Banks has open sandy areas with no trees or vegetation and then there areas of maritime forest with high vegetation lines. The Town of Kitty Hawk has to develop an ordinance to cover all areas, particularly to address wind turbines in the village where heavy tree lines are present. Wind turbines may not be efficient for the average residential location.

From a regulatory standpoint, Kalland said, the economic issue does not need to be addressed because "it's a buyer beware situation." There will be persons insistent on installing a wind turbine even when model information shows the installation unfeasible or even when told the investment return would have a 100-year horizon.

Leker stated different landscapes present why it may be a good idea to mitigate a maximum height on a residential wind turbine tower because one height may not work in an area with trees but might work in an open space. Such is reason why an overall tower height limit was not set in the model ordinance and why a setback multiplier was created.

Ralph Calfee, a local engineer, asked what type of facility is foreseen that would be most viable for the Outer Banks region. When considering residential sites, high tree canopies presents problems and lots without trees are typically not large enough for setbacks. Also, grid connection is a concern. Will there be a major utility facility or something in the sound? If located offshore, how will the power be transmitted back to shore? What about hurricane and storm conditions?

Mauney pointed out there would certainly be logistical hoops to jump through before 12,000 megawatts of power would be developed in an area. Current infrastructure would definitely need to be improved but it is not guaranteed improvements would be made. The issue of hurricanes would not necessarily stop an offshore turbine project. At certain wind strengths, nothing can stand up to the power of a hurricane, but wind turbines are being improved and built better to withstand higher winds.

Mostly likely, small distribution projects will be seen initially, 12-, 15-, and 20-megawatts projects which can connect to the existing grid line coming from Virginia. For smaller to moderate scale projects, good applications would be businesses that have 24-hour operations, such as manufacturing facilities and wastewater treatment facilities.

A bottom line as to what kind of facility is most viable and most likely to be seen, Mauney said there is no facility more viable than the other and what will be seen depends on, sort of, who comes first. The larger the project is, generally, the larger the turbine. The most viable project on an economical scale would be the biggest turbines, which will probably not be seen first.

An inquiry was made if there are any proposed projects being considered in eastern NC with regard to utility scale projects or if there are any proposed wind turbines/facilities proposed to be located in the sound waters or ocean.

As a forum standard, Kalland offered, the forum's purpose is to provide the public with wind energy information, not to discuss specific projects. If a specific project is proposed and is publically announced, a public forum will most likely be held in the community focusing on that project. Right now, there are no proposed projects in the State of any utility scale or even community scale with the exception of the turbine in Moyock, a 50 kilowatt turbine, which is currently the largest in the State. While there may be people considering the resource, there has been nothing publically announced.

A person desiring to install a wind turbine in Avon asked about bird kills and any impact on other wildlife.

Ted Vogel, Alternative Energy Officer with Blackwater, stated there has been no bird killed in the nine months of the Moyock turbine operating.

Kalland explained that as larger scale projects are considered, community scale projects in the second and third tiers, requirements will be in place for the project to research avian migratory patterns, and in most cases, the answer to that question is established beforehand. In Raleigh, a residential scale wind turbine, which makes relatively little wind, granted, has had no problem with birds. Obviously, one would not propose a turbine to be set up at an Audubon refuge. Most developers or interested persons would have some sense of prudence with turbine locations, which is part of the reason why public forum conversations are held – to help a community identify issues which need to be addressed when developing an ordinance.

The owner of the Brewing Station offered there has been no bird killed in the four months of its wind turbine operating, and some unsupportive people had tried to say thousands of birds would be killed each month. With regard to the grid infrasture, he commented that as aging power plants are taken off line, whether replaced by clean coal or nuclear energy, there should be no problem. Future siting of such facilities most likely will be in the middle of nowhere when no one wants them near residential neighborhoods or schools. In this country, one of the biggest reasons preventing anything contentious from occurring is the issue, "not in my back yard." Eventually, "in the middle of nowhere" may possibly be the only location approved for such facilities.

Regarding wetlands and related issues, how does CAMA, FEMA or the Army Corps of Engineers feel about placing turbines in their jurisdictions?

Discussions have begun with CAMA's Renewable Energy Committee, which will meet again the end of September. In NC, Leker noted, discussions concerning environmental issues and what lengths of review need to be undertaken are just beginning. As for other states in the Northeast, Hull, MA has two utility scale wind turbines, and Atlantic City has wind turbines near its sewage treatment plant area. With regard to other coastal communities, Leker said he is not sure of the nature of any discussions.

There is the potential for a NC State-wide permit review team of the Environmental Management Commission, which is the result of the renewable portfolio standard that was passed for NC. Said commission was enacted to have a new energy commission body look at potential permitting and environmental issues related to renewable energy facilities, and there have been some discussions and several meetings of that group with more coming in the next months. Consideration is also being given to an organized NC State-wide review panel.

As to federal level concerns, Leker indicated there have been preliminary discussions. The State of Delaware has a power purchase agreement with Blue Water Wind, which will be located in federal waters. Rhode Island is not far behind. The Mines Mineral Service has authority in waters three miles or more from state boundaries, but no viable process has been determined but is being considered. There may be some process similar to oil and gas leases developed

in federal waters. NC has a distinct advantage of owning significant areas of sound waters, where if the shallow waters of the sound were to be developed, there would be no need to use the Mines Mineral Service or any oil- or gas-like lease arrangement. Obviously, the Army Corps of Engineers and others will be involved.

Fagan pointed out that VA Dominion Power has requested an 18% rate increase; NC Dominion Power, a 17.8% increase. What is the business relationship that can be said for the power companies: are they going to act as sponsors or partners or act as competitors?

Quinlan explained the trend with big utility companies is exploring other options and seeking various renewable energy technologies, trying to see what is suitable as well as meeting the State mandate. Within the last years, it has been interesting to watch utilities explore options. Utilities would most likely form a power purchase agreement with the owner/operator of a wind facility, probably for 20 to 25 years. With regard to solar energy, Duke Energy is taking a strong interest in owning and operating solar energy. Nationally, utilities tend to be moving towards owning and operating wind energy.

Regarding the rate increases, Kalland noted the increases are taking place before anything has been done with renewable energy. One thing to keep in mind with regard to all these discussions is, even if nothing is done, the price of power in NC is increasing and will probably increase dramatically in the future. With renewable energy and energy efficiency, the big advantage is there is no real escalation in costs once the initial investment has been made, whereas with existing coal and nuclear facilities, costs are going up with little infrastructure upgrades. Utility prices will continue to increase, and in the long run, a renewable portfolio standard's end goal is to help stabilize prices and aim towards a fixed cost for electricity once the initial investment is made.

A member of the audience said previous meetings have discussed small residential units but the numbers that clearly show the hopeless economics of either the 2.5 kW unit at Coquina Beach or the unit at the OB Brewing Station have not been indicated. The question was posed, "Shouldn't the public be squared with to understand that even with massive government handouts these impractical machines can never pay for themselves, even if one ignores maintenance and repairs?"

When considering the whole energy industry of nuclear, coal, wind and solar, Quinlan offered, everything is subsidized. One of the primary revenue sources for a wind energy utility scale is the production tax credit. Also, there would be no nuclear power plants unless the government covered them with a giant insurance policy so utility companies would not be liable for accidents. Across the whole energy industry, everything that we derive power from is subsidized by the government, so it's a balancing act.

Vogel noted he manages Moyock's 50 kilowatt turbine, which is 147' high at the tip of the blade sweep and sits on a lattice tower. To give an example of that same turbine in an Outer Banks scenario, he explained that Blackwater ran a preliminary computer-based wind study of Kill Devil Hills for First Flight High School. It was estimated that a turbine would produce between 120,000 and 140,000 kilowatt hours of electricity if located in the front yard of the school (where the flag pole is), and the estimate was based on GPS coordinates, available wind maps and computer models.

If considering a 30-year lifespan on the turbine, it would produce 3.6 million kilowatt hours at the low end, 4.2 million kilowatt hours at the high end. Vogel presented that at a $225,000 installed cost, including operations and maintenance which can be handled by local personnel trained by the company, the machine would have a five-year warranty. Electricity would then be bought at the installation of that machine at the low end of $0.035 per kilowatt hour for the life of the wind turbine and $0.062 per kilowatt hour at the high end. With Dominion Power charging $0.09 to $0.11 per kilowatt hour along the Outer Banks, the economic model is there for

a 30-year payback. That estimate is without any tax incentives, without any state or federal tax credits, nothing. On the other end, looking at the turbine at the Outer Banks Brewing Station, the business owner has indicated a $250 - $400 a month reduction in energy costs for the business.

There are NC tax credits, and there is tax credit for depreciation of equipment. Not to dispute the comments offered, Vogel said he believes the business case is there for wind energy efficiency and for solar as well. Any responsible renewable energy ordinance needs to address community building codes in general, not just setbacks, height, shallow flicker, etc. The Currituck County ordinance is outstanding, one of the best in the eastern U.S. Ordinances need to look at efficiencies of building, such as mandating triple-pane windows and upper-level insulations. The whole picture needs to be considered, not just wind or solar issues.

Going into the question regarding cost of energy, Vogel recalled it was stated at the Jockey's Ridge public form that if one wants to build a new coal plant, the cost is $0.80 on the dollar for a 300 megawatt coal-powered power plant vs. a 300 megawatt wind turbine plant.

Vogel posed that one should ask what the fully burdened cost is when considering mercury in the atmosphere or acid rain downwind. Specifically when considering nuclear energy, consequences such as Three-Mile Island or Chernobyl are remembered and those events were not pleasant experiences for those local communities. Such is a whole different dynamic which seems to never be represented: the fully burdened cost of sources of energy. Wind energy use is something that once installed, there are not a lot of detrimental effects down the road. Detrimental consequences exist with coal, nuclear, oil, or natural gas, and with those fuels, there are opportunity costs involved as well as transportation costs for all sources of fuel. Vogel summarized such costs will not stay stable, offering that his own electric bill has never gone down.

In response to Vogel's comments, Kalland emphasized it is not fair to pull out the examples of Three Mile Island or Chernobyl. No one was hurt at Three Mile Island, and no one ever plans to build again anything resembling Chernobyl. Vogel replied that he was referring to the cost of clean up after an accident. Kalland then stressed that it is important to look at issues evenly. [The Recording Secretary notes a change of tape occurred at this point in the discussion.]

Leker added the estimated construction costs of a new coal or wind facility is about the same at $1,800 per kilowatt. The cost is very competitive, and as seen in the Midwest, wind plants are being built and are found to be a good economic risk as compared to coal.

A gentleman from the audience asked several questions which were identified as technical and project specific in nature, to which the panel offered to speak with him personally after the forum is closed. As well, the invitation was extended that anyone wishing to speak with the panelists after the forum is closed may do so.

At this time, Kalland indicated just two more questions would be discussed, noting the Planning Board had other agenda items to address.

An inquiry asked if the infrastructure for commercial-sized wind farming would be in comparison to that of offshore Infrastructure for oil and natural gas.

Leker began with noting the only infrastructure that can get from the ocean to the grid is a power line, indicating, however, that he was not certain what the infrastructure is for oil and natural gas but knew it is very significant. There is a 10- to 15-year lead time for the development of water-based oil and gas recovery units. Though such is not yet developed in the U.S., Quinlan added, with offshore renewables applications, there would be significant boats and other types of marine equipment needed, and legal issues would also need to be addressed.

A comment was made with regard to excess wind turbine power being sent back to the power company, that the utility commission recently lowered the rate from $0.18 per kilowatt to $0.15 per kilowatt. The question was posed, "Do you foresee when wind generated power will be increased on that type of payback?"

With regard to the compensation rate offered, Kalland explained that a non-profit group called NC Green Power was formed in conjunction with the Utilities Commission to help support renewable energy from voluntary contributions, which is different from the renewable portfolio standard. The standard could be thought of as setting a baseline for all energy in the State of NC, where everybody's electricity is going to be at least 12.5% from renewables and energy efficiency by 2021.

NC Green Power is a program that exists for people who want said percentage to be even greater. The way the program works is one signs up through their utility company to spend $4.00 per block of 100 kilowatt hours each month. More than one block can be bought, and the utility forwards the $4.00 blocks to the non-profit organization, NC Green Power. Then, NC Green Power spends 25% on administration and marketing to help grow the program, and the other money goes into a fund that supports renewable energy projects. As a wind energy supplier, for example, one can sign up with NC Green Power to sell power to the utility grid, to sell the renewable energy credits to NC Green Power which then retires them so they cannot be used to satisfy the renewable portfolio standard requirement.

It is true for solar energy that the amount NC Green Power pays was recently reduced from $0.18 to $0.15. The reason was: there has been great success in stimulating new residential scale solar energy in NC - so much success that NC Green Power cannot afford to pay $0.18 any longer.

Taking the issue further and to clarify the intent of the previous question, the person posing the question said it was his understanding that the utility company would pay no more than the $0.15 payback. His concern was having a wind turbine which produces 10 kW per hour while using only 1.25 kW per hour, in that it would seem fair to be compensated for the excess energy.

Kalland agreed there should be compensation for the excess energy. Though he was not certain about the first part of the concern expressed, Kalland said it is his understanding the utility is only required to pay someone the wholesale rate, which is about $0.03 per kilowatt hour, and then NC Green Power pays for the renewable energy credits, which is now about $0.15, totaling $0.18. When NC Green Power paid $0.18, the total was $0.21. When looking at retail cost of power, power is purchased somewhere between $0.07 and $0.09 depending upon where one lives, and if living in a municipal territory, it might even be higher. Thus, wholesale rate and NC Green Power's payment is a better deal than what is called "net metering," where excess supply is sent back to the utility grid and a retail credit is received. NC Green Power has seen a lot of systems go in but have not seen them go in under the net metering rules of the State.

Concluding the public forum, Chairman Northen thanked the panelists for the enlightening presentation. It was announced that the panelists would stick around for further conversation with anyone interested in doing so. The audience showed their appreciation with applause.

Noting that the Planning Board had other agenda items to address, the Chair called for a brief recess. Time was approximately 7:38 p.m.

The meeting was called back to order at approximately 7:46 p.m.

4. APPROVAL OF MINUTES

a. August 7, 2008 Meeting. Hearing no corrections or amendments, **Tice moved to approve the minutes of August 7, 2008. The vote was unanimous, 5-0.**

b. August 21, 2008 Meeting. Chairman Northen noted a correction with his name, where in error the chair position had been identified as Taylor. Hearing no other changes, Chairman Northen asked for a motion to approve the minutes, and **Tice so moved. The motion carried unanimously, 5-0.**

5. TEXT AMENDMENT:

a. Sections 20-66 & 20-67 – Nonconforming Lots of Record: Establish Standards for Non-conforming Multi-Family Residences. Planner II O'Shea said the proposed text amendments intend to consolidate and clarify the Town's standards for the repair and reconstruction of damaged or destroyed nonconforming structures and uses.

At the September 8, 2008 Kitty Hawk Town Council meeting, Council requested that staff draft a proposed text amendment to clarify the Town's intent to allow nonconforming duplexes and multi-family residential uses to be reconstructed in cases where such structures have been significantly damaged or destroyed by a catastrophic event (wind, flood, fire, etc.). Upon staff's review of the existing ordinances dealing with nonconformities and in discussing alternatives with the Town Attorney, it became clear that it would make the most sense to accommodate the requested amendment and, at the same time, address several related items.

Upon commenting the proposed text amendment is a matter of housekeeping, Chairman Northen opened the floor for discussion.

Referring to an issue brought forward at the September 8, 2008 Council meeting, Vice Chair Tice noted the subject ordinance also addresses a time frame of thirty (30) days in which the repair or reconstruction process must begin, suggesting more time should be allowed. O'Shea indicated the timeframe stipulation was examined by Planner Heard and it was determined that thirty (30) days seemed inadequate and unfair. The proposed language includes a one-year calendar date stipulation in order to allow more time for a property owner, for instance, to deal with insurance mitigation issues.

O'Shea stated staff is open to any recommendation by the Board with regard to the time requirement. It was explained that anything beyond a calendar year of the date that a structure is damaged or destroyed would be too much leniency, and a property owner should at least begin to repair or replace a structure within a calendar year. Vice Chair Tice posed the allowance for a calendar year is too much time, suggesting a time frame between 30 days and a calendar year. O'Shea noted that she and Planner Heard had discussed a time allowance of six (6) months being the time in which the permit, at least, must be obtained and then construction could take as long as needed.

Upon Chairman Northen bringing forth the issue of absentee ownership as another reason for allowing a year's time frame, Vice Chair Tice cautioned that the Town would not want to deal with derelict structures where the debris is not timely removed, such as the Continental Hair Design situation. It takes time, obviously, to deal with insurance claims but stipulating that a permit must be obtained within 180 days is sufficient. O'Shea pointed out current

Town ordinances require that in order to keep a permit active, work must begin within six (6) months of obtaining a permit.

Hooper said he agrees with Tice about derelict structures; however, he added that when dealing with CAMA and government regulations, six months is tight. CAMA requirements alone may take up to two or three months, which O'Shea agreed with from experience as a CAMA officer. The situation determines how much time is needed. After a catastrophe, CAMA often waives its fee and some of the requirements, but at a local level, typical residential applications have a 25-day turnaround once received. As his opinion, Hooper reiterated that six months is difficult to work under particularly when there is a catastrophe, and O'Shea noted ordinances can be written to require that the permit be pulled within the six-month time frame but with an added caveat which allows a permit holder to apply for an additional six-month window for dealing with unforeseen situations. It is feasible to expect derelict structures to be dealt with to either be made safe or look better within six months, Hooper added, but the six-month time frame should not interfere or cut off processes being accomplished towards starting construction.

Chairman Northen stated having a caveat with any time frame would allow for extenuating circumstances. Any request for a time extension would be documented, O'Shea pointed out. Usually, the challenge is a neighboring property owner's complaint. With documentation, the Town can indicate that a property owner of a derelict structure is trying to work things out and is in need of extra time. Hooper said the difference is a property owner attempting to deal with a situation rather than a property owner who delays any attention to the matter until day 364 of a calendar year. O'Shea then remarked that any ordinance written for this type of situation attempts to encourage property owners to be responsible after an incident.

Vice Chair Tice recalled an oceanfront property at MP 2 that was damaged by a storm and the property owner failed to be responsible, causing the Town to send a notification letter. With the delay and other storm events following, even more damage was done to the property. What needs to be determined is how to encourage timely response. Tice then verified if Hooper was saying that 180 days is unrealistic in which to get permits for situations such as roof damage or in the case of a fire, and Hooper indicated, "yes." As a prime example, Hooper explained, an oceanfront property owner may have to first argue whether the property is more or less than 50% damaged, and more than likely, the improvement on the property existed as a nonconformity. Upon request by the Chair for a suggestion other than the 180-day time frame, Hooper indicated he would recommend a calendar year, or at least a six-month period with another six-month caveat for when additional time is needed. Permitting and construction processes are not always cut and dry, especially after storm events.

While listening to the Board's discussion, Attorney Michael offered he was drafting language to suggest for the Board's consideration, particularly language to address the six-month extension caveat. O'Shea noted that similar Town ordinance language points out an additional six-month time frame may be approved by the Planning Director or his designee.

Regarding the 50% rule, VC Tice said situations arising after Hurricane Isabel found property owners dealing with changing property values due to the tax assessment which followed thereafter. For instance, a property previously valued at $40,000 and increased to $100,000 after the tax assessment caused a property owner to need reappraisal in order to deal with increased insurance requirements.

Upon question by Stallman, O'Shea indicated the proposed text amendments do not change the ordinance but are a housekeeping matter in order to make the language as clear as possible, as well as organizing its placement among related ordinances.

Vice Chair Tice explained that the need for this text amendment was brought forward to the Town's attention when a Kitty Hawk property owner of a nonconforming quadraplex built before the Town's incorporation made an inquiry about storm reconstruction. The property owner contemplating the sale of the property is anticipating that potential buyers will want to know if the property could be rebuilt should it be damaged or destroyed. Staff had indicated, that technically, the property could not be built according to the Town ordinance as written. Planner O'Shea clarified that the majority of the Town's quadraplexes or duplexes are on lots smaller than what the Tow Code currently allows – current regulations allows for four units per acre density. In this situation, it is the lot and the existing quadraplex structure which is nonconforming, as well as the use. By current standards, the Town would not permit a duplex or a quadraplex on a 15,000 sq. ft. lot nor would the health department approve a septic system for that large a dwelling or that large a multi-family project. The proposed text amendment is predominately geared towards the quadraplexes and duplexes.

Setting aside the proposed regulations, Stallman posed, if a fire destroys the subject nonconforming quadraplex, can it be rebuilt under current regulations? Such a situation is where the 50% rule comes into determining such, O'Shea responded. Hooper added that though the structure is grandfathered, any repairs done would have to be in accordance to current standards and using the same footprint would be required, and VC Tice noted current regulations require that the permit to do so would have to be obtained within 30 days of the damage occurring. Stallman then summarized that current code would allow for the rebuilding of a nonconforming structure, and O'Shea indicated, "correct." What is proposed is clearing up language addressing nonconforming structures, uses and lot sizes.

Disagreeing with the summation, Vice Chair Tice recalled that staff's original response was that it could not be rebuilt. Attending the meeting was Councilwoman Klutz who added to the discussion by explaining that the subject issue is addressed by two primary paragraphs in the ordinance: one which addresses a nonconforming structure, and the other addresses the use, which is the paragraph which Town staff interpreted as not allowing the rebuilding of the use itself. The key issue, in this case, is that the quadraplex use is not an allowed use.

Agreeing with Councilwoman Klutz's summation, Attorney Michael clarified that the nonconforming structure could be rebuilt on the nonconforming lot but the use could not be recreated. When Council adopted the ordinances relating to nonconformities, it was thought this issue was addressed. The proposed language inserts language which clearly addresses the nonconforming use itself, allowing any legal nonconforming use to be recreated to its condition prior to a catastrophic event.

Upon question by Chairman Northen concerning any necessary repairs being required to be done in accordance with current code regulations even though a prior condition was not to current code, O'Shea reiterated that the 50% rule comes into play, which is part of the Town's flood ordinance, which is actually a FEMA recommendation. Chairman Northen posed if the subject property would be a similar situation, and O'Shea said it would be similar in understanding. Any construction done today has to be built to 2008 standards, even if the damage may only be 10%, and if the property is in a flood zone, then the flood ordinance's rules predominate.

Stallman asked if the proposed language applies only to the current owner, noting a new owner could buy the property in an as-is condition after a storm event. Attorney Michael stated the nonconforming use goes with the land, not the owner. As long as the new owner would seek repairs or reconstruction within the ordinance's time frame, he should be able to reconstruct whatever was present before being damaged or destroyed, if he so chooses to do so.

Attorney Michael then offered the following language for the Board's consideration: "*An additional six months may be granted by the planning director or his designee when the director or designee determines that the extension is necessary due to delays beyond the control of, or not caused by, the owner.*" The language addresses situations beyond the property owner's control, such as a court proceeding or arbitration. Tice and Hooper indicated their agreement with the proposed language.

Stallman commented the intent of the amendment is to deal with a hardship on a property owner, to allow what was had by the property owner before a storm event, but the Attorney's proposed language, he thought, allows the conformity to continue. As his opinion, any new owner would not necessarily have a hardship. In response, Attorney Michael explained that a hardship does exist if a property owner is unable to sell the property because of any potential buyer being told the existing structure and use could not be rebuilt if it is destroyed. It would leave that property owner with a piece of dirt with which nothing can be done. When Stallman expressed that he is concerned with perpetuating the nonconformity, Attorney Michael added that what happens with insurance is if a property owner does not take the insurance money and rebuild the property, the property owner takes a hit on what the insurance company will pay on the policy as a buyout. Therefore, there is an economic incentive to rebuild it. O'Shea then noted there is also the possibility, with this subject property, the health department would not approve a new septic permit for a four-unit structure, and the cost would be prohibitive to install a peat system by today's standards. There are issues beyond the Town's ordinances which may affect a homeowner and a nonconforming use.

Fagan indicated he is viewing the key to this problem as being the use of the property. He also stated support for the Attorney's recommended language.

Pruitt stated that he agrees with Hooper's comments allowing additional time for property owners to deal with any hardships encountered.

Vice Chair Tice moved that the Board recommend approval of the text amendment to Sections 20-66, 20-67, 20-68 and 20-69 of the Kitty Hawk Town Code to establish and clarify standards for the repair and reconstruction of damaged or destroyed nonconforming structures and uses as modified by the Town Attorney [as entered into the record] and find that it is consistent with the Town's Land Use Plan. Upon call for the vote, **the motion carried unanimously, 5-0.**

6. COMMENTS:

a. Chairman Northen. The Chair thanked Councilwoman Klutz for her attendance.

b. Planning Board Members. No further comments were offered by Board members.

c. Town Attorney. The Town Attorney did not bring forward anything for the Board's consideration.

d. Planning Director. O'Shea had no other matters to bring forward. Upon poll of the Board members, no further questions needed to be asked of the wind energy panelists.

7. PUBLIC COMMENT: There were no comments by the public.

8. ADJOURN

Chairman Northen declared the meeting adjourned at approximately 8:15 p.m.

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Oscar Northen, Chairman

Total Attachments: None

Minutes Transcribed and Respectfully Submitted By: Betty Moore Williams